International Journal of Spatial Data Infrastructures Research, 2013, Vol.8, 128-143

INSPIRE Geology Data Model Implementation in Digital Geological Map Production in Portugal: A Preliminary Approach*

Aurete Pereira[1], Gabriel Luís[2], Pedro Cabral[3]

[1,2]Laboratório Nacional de Energia e Geologia, Lisboa, Portugal; aurete.pereira@lneg.pt; gabriel.luis@lneg.pt

[3]Instituto Superior de Estatística e Gestão de Informação, Universidade Nova de Lisboa, Portugal; pcabral@isegi.unl.pt

Abstract

This work describes the implementation of the INSPIRE Geology data model (INSPIRE GE) for digital geological map production at the Portuguese Laboratory of Energy and Geology (LNEG). The process of harmonising geological mapping data involves the restructuring of the LNEG's current data model into the extended INSPIRE GE, which aims a more efficient, interoperable and harmonized management data structure. The methodology, which is compliant with the Portuguese geology requirements, was applied to the Rosário antiform, a geological structure located in the Iberian Pyrite Belt. Three maps were produced: (i) a geologic map representing the geological units organized according to their spatial distribution and age; (ii) a lithologic map representing the most important rock types; and (iii) an age map representing the lower boundary age of the geological units. This study improves current LNEG's data structuring and geological map production flow. It also shows that the INSPIRE GE implementation is feasible and that it constitutes the first step toward data harmonization and interoperability in LNEG geological mapping activities.

Keywords: INSPIRE, LNEG, geological mapping, data harmonization, interoperability, GIS, SDI.

DOI: 10.2902/1725-0463.2013.08.art6